ABSTRACT FINAL ID: IN11B-1300

TITLE: Project of a Near-Real-Time Sismo-acoustic Submarine Station for offshore monitoring (NRTSSS)

SESSION TYPE: Poster

SESSION TITLE: IN11B. Current Capabilities and Future Needs of Near Real Time Data I Posters

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ABSTRACT BODY: The INGV seismic network ensures reliable and continuous monitoring of the Italian territory. However, the peculiarity of the Italian peninsula, characterised by an intense offshore geodynamic and seismic activity, requires the extension of the seismic monitoring to the sea.
The aim of this project is:
- to identify bottleneck is related to the construction, installation and use of underwater seismic station;
- to define the most appropriate and low-cost architecture to guarantee the minimum functionality required for a seismic station.
In order to obtain reliable seafloor seismic signals integrated to land-based network, the requirements to be fulfill are:
- an acceptable coupling with the seabed;
- the orientation of the components with respect to the magnetic North and to the verticality;
- the correct time stamp of the data;
- the data transfer to the land for the integration.
Currently, the optimal solution for offshore seismic station is a cable connection to power and real-time data transfer, like the case of Western Ionian Sea cabled observatory, one of the operative node of the EMSO research infrastructure (European Multidisciplinary Seafloor and water column Observatory, http://emso-eu.org). But in the Mediterranean many seismic areas are located a few tens-hundreds of miles from the coast and cabled solutions are not feasible essentially for economic reasons. For this kind of installations EMSO research infrastructure foresees no-cabled solution, that requires a surface buoy deployed in the vicinity seafloor modules.This project plans to develop a surface buoy equipped with autonomous power supply system to power also the seafloor platforms and two-way communication system enabling the data transfer through latest generation of broadband radio communication or satellite link (Fig. 1). All the components of the prototype system are described.

KEYWORDS: [4262] OCEANOGRAPHY: GENERAL / Ocean observing systems, [4294]

OCEANOGRAPHY: GENERAL / Instruments and techniques, [7294] SEISMOLOGY / Seismic instruments and networks, [7200] SEISMOLOGY.

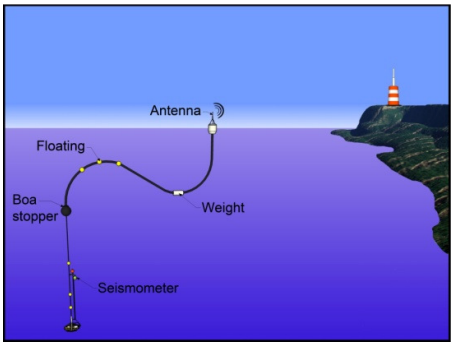

Fig. 1 - Sketch of the (Near) Real Time Sismo-acoustic Submarine Station

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